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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,206	11/27/2001	Christopher L. Hill	STL10005	9541

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EXAMINER

MILLER, PATRICK L

ART UNIT PAPER NUMBER

2837

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/995,206	Applicant(s) HILL ET AL.	
	Examiner Patrick Miller	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>04062004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed with respect to the Applicant's claim that the amendments to independent claims, 34, 41, and 47 is supported in the specification have been fully considered but they are not persuasive.
 - The Examiner cannot find sufficient support in the specification or figures that discloses the predetermined value is selected to control an output characteristic of the power supply. See 112 (1st) rejections below.
 - The Examiner welcomes the Applicant to schedule a telephone interview to clarify this feature.

Claim Objections

2. Claims 46 and 49 are objected to because of the following informalities: See bullets below. Appropriate correction is required.
 - Claim 46 cites, "a predetermined threshold." It is unclear whether this threshold is the same as that cited in claim 41. If so, change "a" to "the."
 - Claim 49 cites, "the substep." Change "the" to "a."

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the means to decouple the power supply from the load must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
4. Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures

appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 34-40 and 47-51 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.
 - With respect to claims 34 and 47, the specification discloses “[w]hen this voltage from the integrating capacitor 312 reaches a level equal to or greater than the voltage reference set by the DAC 310, one-shot comparator 318 will fire a finite, programmable duration

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pulse which will disable motor drivers 320 and reset switch 316" (page 7, first full paragraph). Additionally, Figure 3, the power supply is labeled as #302.

- It is unclear from the specifications and from Figure 3, how power, #302, is removed from the load. More specifically, Figure 3 does not show a means for removing power from the load (motor). Please clarify or amend claims to properly represent the claimed invention.
6. Claims 34-51 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
- Claims 34, 41, and 47 disclose that the predetermined value is selected to control an output characteristic of the power supply. The specification only states that the reference voltage (predetermined value) may be determined by constants, time dependent values, and velocity dependent values. Furthermore, the specification states that controlling the power supply reduces high frequency current spikes seen on the power supply (page 9, second full paragraph). The specification does not disclose the predetermined value is selected based on an output characteristic of the power supply, but rather, the specification seems to disclose the predetermined value is based on output characteristics of the motor.
 - With respect to claim 37, the specification (page 9, second full paragraph) does not disclose the predetermined value being based on a spike value. The specification only states that the predetermined value may be adjusted, i.e. is programmable, and controlling

power supply as described in the specification reduces high frequency current spikes due to commutation switching. The specification does not disclose the predetermined value based on a voltage or current spike threshold or value. Furthermore, the amount of charge does not cause a spike, but rather, an amount of charge produces a certain level of spike when, for instance, a switching action occurs.

- Claim 50 cites the substep includes a summing charge. The Examiner cannot find this feature in the specification or in the figures.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 34-36, 38-40, 47, 48, and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukuoka (5,574,608).

- Fukuoka discloses an apparatus and method comprising a circuit that monitors a cumulative amount of charge associated with a power supply, wherein the power is removed from a load (motor) when the cumulative amount of charge is at least equal to a predetermined value (abstract).
- With respect to claim 36, the driver is disabled when a charge is at least equal to the predetermined state (fig. 1, power to #3 is disabled).
- With respect to claim 38, the charge is measured by an integrative device (fig. 1, #7).
- With respect to claims 39 and 48, a brushless motor is an inductive load (col. 1, lines 8-12).

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- With respect to claim 40, the circuit minimizes a spike on the power supply (fig. 2, #6).
 - With respect to claim 51, the power supply is decoupled from the load for a predetermined amount of time (col. 5, lines 30-42).
8. Claim 41-43, 45, and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Pertessis et al (4,804,901).
- Pertessis et al disclose a system comprising: a motor coupleable to receive a power supply (fig. 1, #12 to #28), a sensor coupleable to the motor (fig. 1, #40), a control circuit including an input and output (fig. 1, #34, 36, 38, 42), the input is coupled to the sensor (fig. 1, #34 to #40), the control circuit provides an output signal based on an amount of charge from the power supply when the amount of charge is at least equal to a predetermined threshold (fig. 3, output of #38 based on stored value at #84).
 - With respect to claim 42, #34 has an integration function (col. 6, lines 6-11).
 - With respect to claim 43, a comparator is coupled between the input and output (fig. 3, #38).
 - With respect to claims 45 and 46, switch #42 in Figure 3 is the driver and is disabled based on the output of #38.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pertessis et al as applied to claims 41 and 43 above, and further in view of Lockyear (4,410,845).

- Pertessis et al do not disclose the comparator being a one-shot type.
- Lockyear discloses a motor control system that uses LM 3900 comparators, which are one-shot type. The motivation to use one-shot comparators is to provide the switching circuitry (fig. 1, #95) with pulses, thereby providing the advantage of sending pulses to the control circuit (fig. 2 to fig. 1, #23).
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the device of Pertessis et al with a one-shot comparator, thereby providing the advantage of reliably controlling the power to the motor windings, as taught by Lockyear.

10. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuoka as applied to claim 47 above, and further in view of Gully et al (5,017,854).

- Fukuoka does not disclose a sub-step of monitoring an amount of charge that is proportional to the charge amount removed from the power supply.

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- Gully et al disclose the charge of the capacitor directly proportional to the supply voltage and time. This provides the advantage of an accurate charge measurement with respect to the supply voltage (col. 3, lines 40-59).
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the device of Fukuoka as described above, thereby providing the advantage of accurately measuring charge with respect to the supply voltage, as taught by Gully et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Miller whose telephone number is 571-272-2070. The examiner can normally be reached on M-F, 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2800 ext 41. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick Miller
Examiner
Art Unit 2837

pm
June 8, 2004

Bentsu Ro
Bentsu Ro
Primary Examiner